

REMARKS

Claims 1, 2 and 4-12 were rejected under 35 U.S.C. §103(a) as being unpatentable over NessAiver, in view of Applicants' admitted prior art that image segmentation is a known technique for use in processing and displaying medical images.

This rejection is respectfully traversed for the following reasons.

In the narrow sense, Applicants submit that simply because the NessAiver reference teaches the segmentation of data, there is no reason why a person of ordinary skill in the field of medical imaging would propose modifying the processing procedure disclosed in NessAiver to employ image segmenting, despite the fact that image segmentation is a known technique for extracting desired features from medical images.

In this regard, Applicants respectfully submit the Examiner has not properly evaluated the NessAiver reference anew, or in a manner unfettered by the Examiner's previous analysis of that reference, in response to Applicants' previously-submitted arguments. Applicants respectfully submit it is only because the Examiner previously relied on the NessAiver reference that the Examiner is now continuing to make use of that reference, simply because of the coincidence that the NessAiver reference happens to refer to "segmentation" in the context of categorizing data, whereas the present claims refer to segmenting an image. Despite the fact that, as acknowledged by the present Applicants, segmenting an image is a known technique, there is no reason why segmenting an image comes to a mind to a person of ordinary skill in the field of magnetic resonance tomography, simply

because of the coincidence that the word “segmenting” in other contexts has a broad or more generalized meaning.

Applicants respectfully submit that, if not for the fact that the Examiner previously relied upon the NessAiver reference, there would be no reason for the Examiner to conduct a search in patents relating to segmenting (categorizing) data, with regard to a patent claim that (properly understood) relates to segmenting an image. In fact, it would be more beneficial to conduct searching for a claim relating to segmentation of images in a manner that *avoids* getting “hits” for references relating to segmenting of data, because it would be known in advance that such “hits” would be false-positives, and would not be useful in providing relevant information with regard to claims evolving image segmentation.

In the broader context, however, Applicants respectfully submit that the NessAiver reference does not provide any teaching, guidance or motivation to combine first data representing non-stationary tissue in successive different positions, and second data for a speed-resolved image series of a moving region, with the two series being combined in a synchronized manner, as set forth in claim 1 of the present application.

Applicants acknowledge that the NessAiver reference discloses a magnetic resonance sequence that allows the generation of quantitative flow images, as described at column 6, lines 52-53, by means of an interleaved MR sequence having a motion-sensitized echo sequence and a reference echo sequence. This is described at column 10, lines 38-39 of NessAiver. In this manner, motion-sensitive images and reference images within a single breath hold, and preferably within a single cardiac cycle, can be obtained, as stated at column 10, lines 53-57. The

reference images and the motion-sensitized images are reconstructed frame-by-frame.

In this context, the NessAiver reference teaches the possibility of selecting each image (frame) in sequence at a selectable rate, so that the display on the video monitor illustrates the movement of the heart during the cardiac cycle, as stated at column 6, lines 47-51.

Another possibility that is disclosed in the NessAiver reference is achieved by storage of the images in corresponding quantized motion image memories, so that a ciné sequence of quantized motion images is displayable at the video monitor. This is explained at column 7, lines 1-5 of NessAiver. It is also mentioned that the gradient and RF pulses can be selected so that, if the tissue is moving perpendicular to the slice plane (column 6, lines 18-19) or moving parallel to the read axis (column 6, lines 31-32).

An important statement in the NessAiver reference is at column 8, lines 15-20, wherein it is stated that static material is imaged at half intensity or in black and white concurrently with a superimposed color display of flow velocity.

Four possibilities are described as to how motion-encoded images and reference images can be acquired (column 8, lines 21-41).

It is unspecified and unclear in the NessAiver reference as to whether the aforementioned "static material" is the same as the material shown in the reference image, or whether it is material in the motion-sensitive images, or whether the motion-sensitive images illustrate movement of the heart surrounding flow material.

This is unclear in NessAiver because there is no discussion therein as to how the motion-encoded image and the reference image are related to each other, nor is

there any disclosure as to whether there is a relation to the aforementioned ciné sequence of quantized motion. Applicants respectfully submit that in view of these ambiguities in the NessAiver reference, it is only by virtue of first reading the present disclosure that the Examiner has been able to allegedly equate certain features disclosed in the NessAiver reference with the features of the claimed subject matter. Applicants submit there is no general or specific teaching in the NessAiver reference to display a time-synchronized, simultaneous representation of a flow-encoded region and the surrounding, also moving, anatomical region, as disclosed and claimed in the present application.

The Examiner cited the Supreme Court decision in *KSR International Co. v. Teleflex Inc.*, 82 U.S.P.Q.2d 1385 (2007) as justification for employing the known image segmentation technique in the present context. For the reasons argued above, Applicants respectfully submit that the claims of the present application embody more than merely using the known image segmentation technique in combination with another known imaging sequence, since Applicants do not agree that the NessAiver reference, but for image segmentation, represents a procedure comparable to the remainder of claim 1. Nevertheless, even if this were a correct “parsing” of claim 1, Applicants submit that the Examiner’s reliance on the *KSR* decision is not based on a correct or accurate reading of that decision.

Applicants acknowledge that the *KSR* decision stated that it is not always required to point out a specific teaching in a prior art reference in order to substantiate a rejection under 35 U.S.C. §103(a), but the Supreme Court in that decision by no means approved ignoring the long-standing precedent of requiring a vigorous evidentiary justification and support for a rejection under 35 U.S.C. §103(a),

and certainly did not undertake a blanket overruling of that precedent. In the *KSR* decision, the Supreme Court stated that, *under certain circumstances*, it may not be necessary to point to a specific passage in a prior art reference as evidence of motivation, guidance or inducement in order to modify that reference in a manner that obviates the patent claim in question. The Supreme Court stated that if a person of ordinary skill in the art can implement a predictable variation, and would see the benefit of doing so, §103(a) likely bars patentability.

Nevertheless, the Supreme Court stated that the requirement to find a teaching, suggestion or motivation in the prior art “captures a helpful insight.” The Supreme Court stated that although common sense directs caution as to a patent application claiming as innovation the combination of two known devices according to their established functions, it can still be important to identify a reason that would have prompted a person of ordinary skill in the art to combine the elements as the new invention does. The Supreme Court stated, however, that not every application requires such detailed reasoning. The Supreme Court stated that helpful insights need not become rigid and mandatory formulas. The Supreme Court only stated that if the requirement to find a teaching, suggestion or motivation is required in such a rigid formulaic manner, it is then inconsistent with the precedents of the Supreme Court. In fact, the Supreme Court stated that since the “teaching, suggestion or motivation” test was devised, the Federal Circuit doubt list has applied it in accord with these principles in many cases. The Supreme Court stated there is no necessary inconsistency between this test and an analysis conducted under the standards of *Graham v. Deere*. The Supreme Court stated the only error is transforming this general principle into a “rigid rule limiting the obviousness inquiry.”

Therefore, Applicants submit this decision of the Supreme Court does not in any manner approve, much less require, the absence of a rigorous evidentiary investigation on the part of the Examiner in order to substantiate most rejections under 35 U.S.C. §103(a). Only under the somewhat unusual, and very limited, circumstances outlined by the Supreme Court in the *KSR* decision might the Supreme Court excuse the absence of such a rigorous evidentiary investigation in reaching a conclusion of obviousness under 35 U.S.C. §103(a).

This view of the *KSR* decision has been substantiated by the United States Court of Appeals for the Federal Circuit in *Takeda Chemical Industries Limited v. Alphapharm Pty.Ltd.*, 492 F.3d 1350, 83 U.S.P.Q.2d, 169 (Fed. Cir. 2007), which was one of the earliest decisions of the Federal Circuit after the *KSR* decision was decided by the Supreme Court. The *Takeda* decision concerned a chemical patent that was the subject of an infringement lawsuit, and which was attacked by the infringer on the basis of the claimed subject matter being “obvious to try.” After acknowledging that the *KSR* decision held that the teaching-suggestion-motivation test should not be applied rigidly, the Federal Circuit stated that the *KSR* decision actually recognized the value of that test in determining whether the prior art provided a reason for one of skill in the art to make the claimed combination. The Federal Circuit stated this is consistent with the Federal Circuit precedent in *In re Dillon*, 919 F.2d 688 (Fed. Cir. 1990) and in *In re Deuel*, 51 F.3d 1552 (Fed. Cir. 1995). The Federal Circuit stated that in cases involving new chemical compounds, it remains necessary to identify some reason that would have led a chemist to modify a known compound in a particular manner to establish prima facie obviousness of the new claimed compound. In the *Takeda* decision, the Federal Circuit stated:

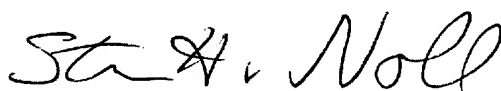
The *KSR* Court recognized that “[w]hen there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp,” *KSR*, 127 S.Ct. at 1732. In such circumstances, “the fact that a combination was obvious to try might show that it would be obvious under §103.” *id.* that is not the case here. Rather than identify predictable solutions for antidiabetic treatment, the prior art disclosed a broad selection of compounds, any one of which could have been selected as a lead compound for further investigation.

The interpretation and application of the *KSR* decision made by the Federal Circuit in the *Takeda* decision is consistent with the guidelines recently promulgated by the United States Patent and Trademark Office for the use of the *KSR* decision in examining applications.

For the foregoing reasons, Applicants respectfully submit that all claims of the application are in condition for allowance, and early reconsideration of the application is respectfully requested.

The Commissioner is hereby authorized to charge any additional fees which may be required, or to credit any overpayment to account No. 501519.

Submitted by,



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